2004 Nonpoint Source Program Annual Report
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NPS Program Vision Statement

Maryland's vision is to implement dynamic and effective nonpoint source pollution control programs. These programs are designed to achieve and maintain beneficial uses of water; improve and protect habitat for living resources; and protect public health through a mixture of water quality and/or technology based programs; regulatory and/or non-regulatory programs; and financial, technical, and educational assistance programs.

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Section 319 Nonpoint Source Program
Technical and Regulatory Services Administration (TARSA)
Maryland Department of the Environment
1800 Washington Boulevard, Suite 540
Baltimore, MD 21230

Phone: 410-537-3906
Fax: 410-537-3873

Richard Eskin
Director, TARSA

Section 319 Nonpoint Source Program Report Contributors:

Ken Sloate
Danielle Lucid
Joe Woodfield

EPA United States Environmental Protection Agency

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MARYLAND NONPOINT SOURCE POLLUTION PROGRAM ANNUAL REPORT

Executive Summary

This report describes Maryland's efforts to protect and restore the state's waters by reducing nonpoint source pollution through the federal Clean Water Act Section §319 program. The Maryland Section 319 Nonpoint Source Program (NPS Program) is dedicated to improving water quality to provide a healthy environment for living resources and people. In an effort to strengthen the Maryland program's effectiveness and better align its goals with state and federal environmental objectives, the Maryland Section 319 Nonpoint Source Program (§319) has been transferred from the Department of Natural Resources to the Department of the Environment.

The Maryland Department of the Environment (MDE) is now the lead agency responsible for coordination of NPS Program policies, funds, and cooperative agreements with state agencies and local governments. Several other state agencies have key responsibilities, including the Departments of Natural Resources (DNR), Agriculture (MDA), Planning (MDP), and State Highway Administration (SHA). The NPS Program is housed within MDE's Implementation and Restoration Division Environmental Restoration and Protection Program, a part of the Technical and Regulatory Services Administration (TARSA).

In the past year, the Maryland NPS Program has had notable program accomplishments and successes. Progress was made in implementing best management practices in all nonpoint source areas through the provision of technical assistance, project funding or both.

Highlighted 2004 programmatic efforts include:

- *Watershed Restoration Action Strategies (WRAS):* The WRAS program continues to make significant progress in developing and implementing comprehensive watershed plans. The WRAS Program provided local counties with extensive watershed technical assessment, capacity support and restoration services. The 2004 WRAS roundtable gave local governments an opportunity to evaluate state technical services and provide input on ways to strengthen the WRAS program.

- *National Nonpoint Source Monitoring Conference:* The Maryland NPS Program in cooperation with the Environmental Protection Agency, Delaware Inland Bays Program, Maryland Coastal Bays Program, Wicomico Soil Conservation District, Worcester Soil Conservation District, Maryland Department of Agriculture, University of Maryland System, and the Sussex County Delaware Soil Conservation District hosted the 12th annual national nonpoint source monitoring conference. The conference focused on the management of nutrient inputs and exports in the rural landscape (See the completed projects section for more details).

- *Agricultural Programs:* The implementation of agricultural programs [Nutrient Management, Maryland Agricultural Cost Share (MACS), Soil Conservation and Water Quality (SCWQ) Program, Conservation Reserve Enhancement Program (CREP)] continues to play a key role in reducing nonpoint source pollution.

- *Nonpoint Source Program Realignment to Met Federal Program Goals:* In July 2004 the Environmental Protection Agency refined new national Nonpoint Source Program measures. Over the next five years, these program measures will be used to evaluate program progress. The primary measure of the program's success will be "Waters identified by States (on the 2000 303(d) list or a subsequent 303(d) list) as being primarily NPS-impaired that partially or fully attain designated uses."

  The Maryland NPS Program has increasingly focused its efforts on the removal of waters from the state's impaired waters list and better integration with the TMDL program. The transfer of the program from the Department of Natural Resources to the Department of the Environment, where most water quality programs are located, will strengthen the program's efforts at meeting these primary national program goals. Over the next three years, the Section 319 Nonpoint Source Program will target its implementation resources to a limited number of watersheds to support the State's overall effort at removing waters from the impaired waters list.

2005 Anticipated Programmatic Efforts

The Section 319 Nonpoint Source Program works to ensure that Maryland continues to fulfill the program requirements of the §319 Nonpoint Source Program (Clean Water Act). During the upcoming year, major programmatic efforts will include:

- *Targeted Watershed Initiative:* The Program will support the state's targeted watershed initiative aimed at removing waters from the impaired waters [303(d)] list. The Nonpoint Source Program will work closely with local governments to focus implementation resources on watershed restoration projects designed to reduce nonpoint source loads and in combination with other efforts remove waters from the 303(d) list.

- *Watershed Planning:* The Nonpoint Source Program will support efforts at developing comprehensive Watershed Restoration Action Strategies (WRASs) in five new watersheds (Prettyboy Reservoir, Deer Creek, Port Tobacco, Miles River and Assawoman Bay). The Program will provide technical assistance (stream surveys, synoptic surveys, watershed characterization) to counties as they develop their watershed-based strategies (See WRAS Program section for more details).

- *Nonpoint Source Management Plan Revision*. The Nonpoint Source Program in cooperation with state and local agencies, and with input from tributary teams and citizens, will revise the 1999 Nonpoint Source Management Plan. The revised management plan will include a short and long-term strategy to reduce nonpoint source pollution and to attain beneficial uses for Maryland waterways. The revised plan will also include a comprehensive description of statewide efforts to control, prevent and reduce nonpoint source pollution.

- *NPS Program Efficiency and Effectiveness:* The Nonpoint Source Program will continue to administer federal grants and strive for increased efficiency and integration of related water programs, as well as accountability in allocation of funds, including improved documentation of project benefits and accomplishments. The Program will report on Maryland's progress toward achieving new national nonpoint source program goals.

- Completing the administrative effort transferring the program to the Maryland Department of the Environment and refining the targeted watershed initiative and integration with the TMDL program.

Nonpoint Source Pollution/ NPS Program Goals & Challenges

The earth is a water planet. Oceans cover over 70% of the earth's surface. Rivers and streams pulse through the major continents providing food and water for billions of people. Across the planet water affects the daily rhythm of life. In Maryland, a complex web of water weaves its way through the State. Maryland is home to the Chesapeake Bay, the nation's largest estuary system and the Coastal Bays that provide habitat for a wide range of aquatic life. Maryland has over 9,940 miles of non-tidal streams and rivers. Several major rivers (Monocacy, Patuxent, Potomac, Choptank, Nanticoke, Gunpowder, Pocomoke and Susequehanna) run through the state. Maryland's water resources provide food and water for its residents, jobs for the economy and a place where people may relax and enjoy the natural environment. Maryland's water resources are under stress from a variety of causes, with nonpoint source pollution the greatest single factor.

Nonpoint source pollution is defined as polluted runoff caused by stormwater (rainfall or snowmelt) or irrigation water moving over and through the ground. As this runoff moves, it picks up and carries away pollutants, such as sediments, nutrients, toxics, and pathogens. These pollutants are eventually deposited in lakes, rivers, wetlands, coastal waters, ground waters and the Chesapeake and Coastal Bays. Nonpoint source pollution is associated with a variety of land-based activities including farming, logging, mining, urban/construction runoff, onsite sewage systems, streambank degradation, shore erosion, etc. Nonpoint source pollution is the main reason why many of Maryland's waters are considered "impaired." Impaired waters are those waters that do not meet Water Quality Standards for designated uses (e.g., fishing, swimming, drinking water, shellfish harvesting, etc.).

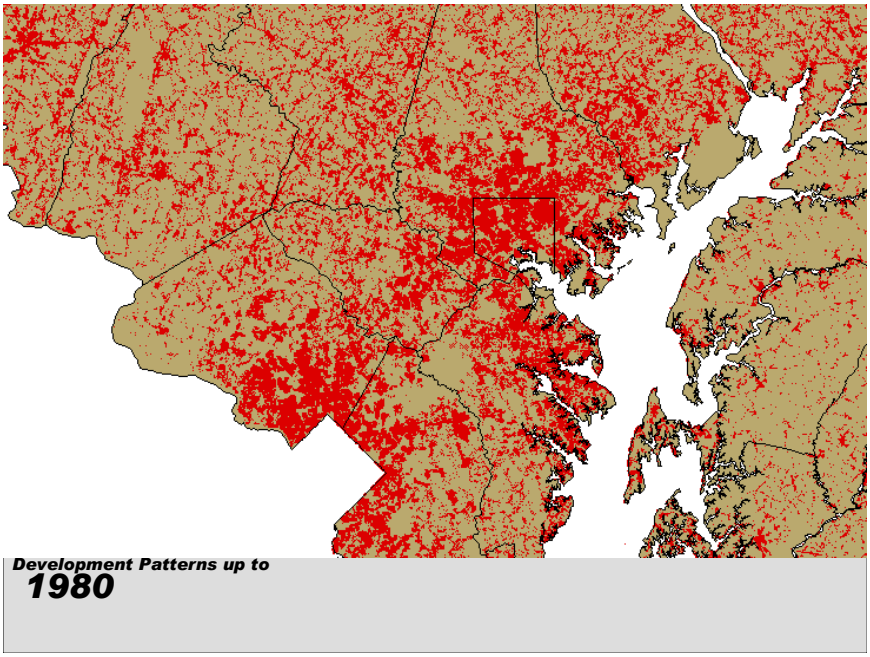
The Maryland Section 319 Nonpoint Source (NPS) Program plays a lead role in helping to achieve protection and improvement of Maryland's water quality by promoting and funding state and local watershed planning efforts, water quality monitoring, stream and wetland restoration, education/outreach, and other measures to reduce, prevent and track nonpoint source pollution loads. The NPS Program plays a key role in promoting partnerships and inter- and intra-governmental coordination to reduce nonpoint sources of pollution, and helping bring both the necessary technical and financial resources to local watershed management planning, continued implementation of best management practices, and restoration of streams and wetland habitats. Program partners include State and local government, Soil Conservation Districts, private landowners and watershed associations, among others.

The NPS Program's four primary goals are:

- Reducing nonpoint source pollution;
- Restoration and protecting habitat (e.g., streams, riparian buffers and wetlands);
- Enhancing watershed management planning and implementation efforts to achieve Maryland's watershed protection and restoration objectives; and,
- Removing waters from the State's list of impaired waters (e.g. the 303(d) list).

The Nonpoint Source Program faces a variety of challenges as it moves forward with financial assistance, implementation of best management practices and developing watershed partnerships that will be pivotal in improving water quality and helping Maryland achieve the Chesapeake 2000 Agreement and Coastal Bays Management Plan goals. Key challenges faced by the NPS Program in collaboration with other state efforts include:

Urban/Suburban Nonpoint Source Pollution is increasing: Maryland has seen tremendous population growth over the last 20 years. As more land becomes developed, there has been an increase in the urban/suburban component of nonpoint source pollution to our rivers and bays. The Maryland Department of the Environment has been promoting new and innovative practices to control stormwater through environmentally sensitive design techniques described in the "2000 Maryland Stormwater Management Manual." This manual promotes innovative design measures (e.g., sheet flow to buffers, natural conservation, reduction of impervious area, open section roadways and grass swales, etc). These design techniques are targeted to new development. There is also a need to address development built before modern stormwater regulations took effect. The Maryland Coastal Nonpoint Source Program recently initiated a two-year effort to demonstrate innovative stormwater management practices on public lands throughout Maryland's coastal zone (see page 16).



Development Patterns up to
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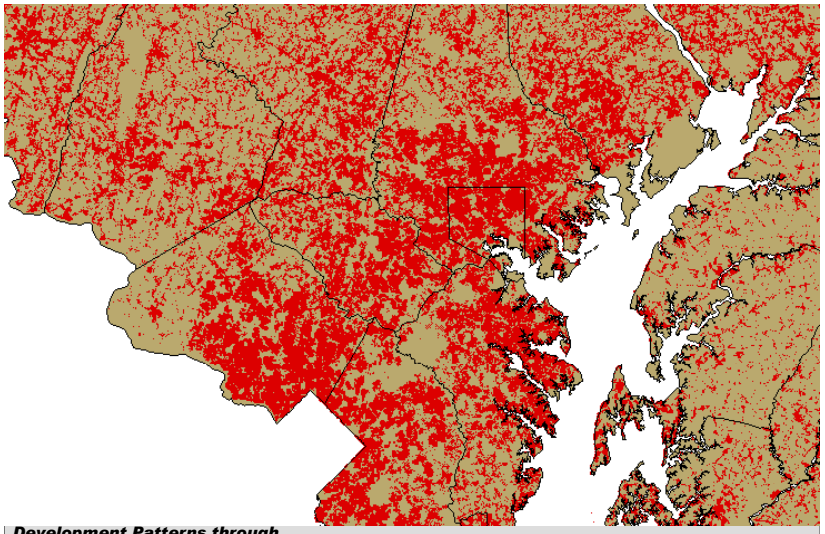


Development Patterns through
2000

Reducing nutrient and sediment pollution: Nutrient and sediment pollution are the main reason our waterways remain impaired. These pollutants are the foremost threats to the state's living resources. Although significant progress has been made in reducing nutrient and sediment pollution, significant progress still needs to be made to meet Chesapeake Bay 2000 agreement and Coastal Bays management plan nutrient reduction goals.

In April 2003, the Chesapeake Bay watershed states agreed to large cuts in the amount of nitrogen and phosphorus flowing into the Chesapeake Bay and its tributaries. The 2010 Bay-wide annual nutrient loading goals are 175 million pounds of nitrogen and 12.8 million pounds of phosphorus. Maryland's Bay wide nutrient loading goal is 37.25 million pounds of nitrogen/year and 2.92 million pounds of phosphorus/year. In April 2004, the Maryland Tributary Strategies program released its revised Tributary Strategy to meet its Bay-wide nutrient loading goals. The Tributary strategy identifies specific actions or practices to achieve measurable reduction in nutrients entering local waterways feeding to the Chesapeake Bay. The strategy focused on three main sources of pollution urban sources, agricultural and point source discharges. The estimated cost of fully implementing the strategy is over $10 billion. Tributary Strategy implementation plans will be completed by the summer 2005.

In May 2004, Governor Robert L. Ehrlich, Jr. signed the Bay Restoration Fund into law. The purpose of this law is to create a dedicated fund, financed by wastewater treatment plant users, to upgrade Maryland's wastewater treatment plants with enhanced nutrient removal technology so they are capable of achieving wastewater effluent quality of 3 mg/l total nitrogen and 0.3 mg/l total phosphorus. A $2.50 monthly fee will be collected from each home served by a wastewater treatment plant. Commercial and industrial users will be charged at the rate of $2.50 per month per equivalent dwelling unit. Fees from wastewater treatment plant users will generate an estimated $65 million per year. A similar fee paid by septic system users will be utilized to upgrade onsite disposal systems and implement cover crops to reduce nitrogen loading to the Bay. By signing this bill, Governor Ehrlich has initiated state efforts to further reduce nitrogen and phosphorus loading in the Bay by over 7.5 million pounds of nitrogen per year and over 260,000 pounds of phosphorus per year. This represents over one-third of Maryland's commitment under the Chesapeake Bay 2000 Agreement.

Resource Constraints/Measurable Environmental Results: As federal and state budgets grow tighter, there is a push for all programs to demonstrate their effectiveness at producing results. The national Nonpoint Source Program is under pressure to demonstrate program effectiveness through measurable environmental results. Over the past few years, the Maryland NPS Program has focused on a watershed approach to help local government effectively leverage their resources to meet environmental goals and objectives. The NPS Program will continue its watershed approach and also more selectively target program resources to aid efforts at removing waters from the impaired waters list.

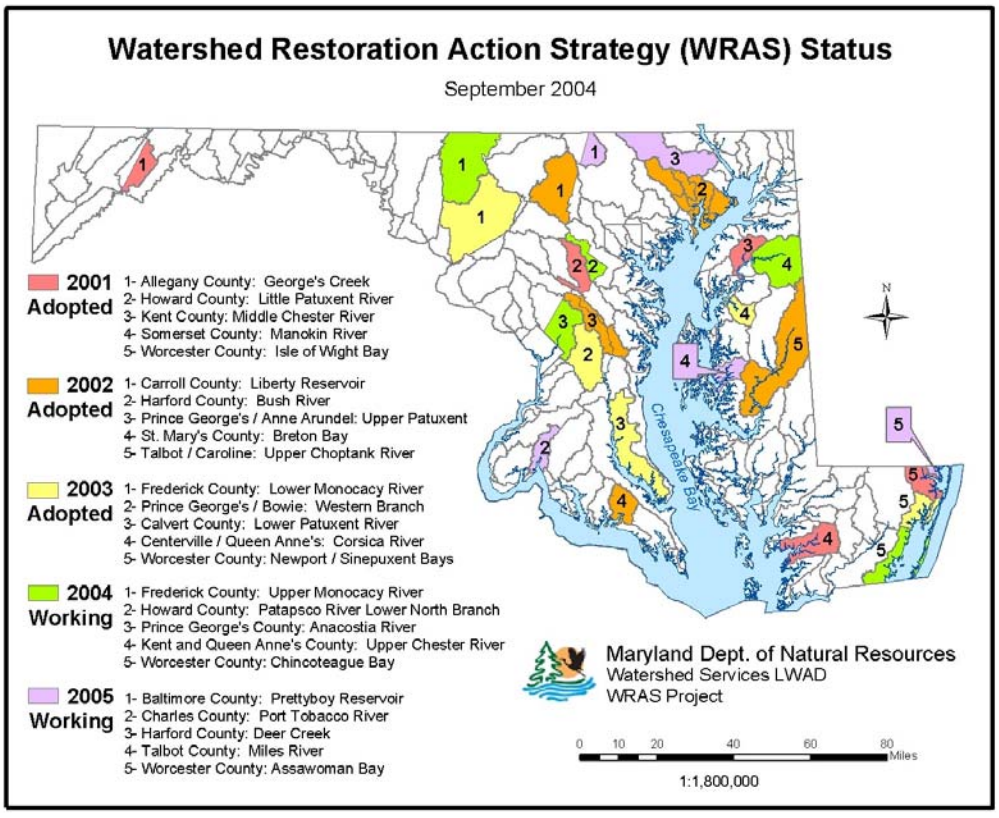
2004 Program Accomplishments

The NPS Program has made continual progress in implementing management activities outlined in Nonpoint Source Program management plan. See Appendix A to view the program's progress at meeting management plan goals and objectives. In the past year, the NPS Program has focused programmatic efforts on Watershed Restoration Action Strategy (WRAS) development. Agricultural Programs and TMDL implementation activities. The program has also made progress on implementing best management practices in all nonpoint source areas through the provision of technical assistance, project funding or both. For a more thorough description of Maryland NPS Program funded projects, see the Nonpoint Source Program Projects section (page 17).

Watershed Restoration Action Strategies Partnership (WRAS) Program

For 2004, the signature effort of Maryland's NPS Program was the WRAS Program, funded and assisted in collaboration with Maryland's Coastal Zone Management Program. The WRAS Program provided local governments with extensive watershed technical assessments, capacity support, and restoration services. Protecting and restore water quality and habitat has been the over-arching goal of the WRAS Program since 2000.

Because of the technical assistance provided by the WRAS Program, local governments are able to prioritize implementation projects aimed at restoration and protection. In addition, the WRAS program helped ensure that other entities within DNR, and entities outside of DNR, such as MDE and MDA, SHA, etc., were coordinating, targeting, and leveraging their efforts in priority watersheds. In 2004, the WRAS Program, through a competitive process, selected five more county or municipal governments to develop WRASs. Each WRAS takes two years to develop and thus ten WRASs are on-going at any given time.



The WRAS Program has grown since its inception in 2000; developing strong and collaborative relationships with local governments, Soil Conservation Districts, urban and rural citizens, the National Park Service's Rivers Trails and Conservation Assistance Program, and local watershed associations. The WRAS Program provides stakeholders with integrated scientific information, funds, and technical assistance for assessing watersheds and setting priorities to address multiple

objectives. The enhanced targeting and priority-setting from watershed planning results in restoration and conservation activities designed to maximize environmental benefits and meet multiple natural resource management objectives including TMDLs, de-listing waters from the impaired waters list, habitat restoration, and programmatic changes that perpetuate watershed protection into the future. The EPA criteria (FR 68(205): 60658-60659, (Oct. 23, 2003) (D) (a) through (i)), has been critical in helping watershed planners focus on key elements that lead to quantifiable plans and future implementation.

The WRAS Program promotes strategic implementation of watershed protection and restoration activities primarily through support of:

- **Local Watershed Assessment:** In 2004, DNR provided technical resources to local governments and associated stakeholders. With the 319 Program moving under the auspices of MDE, these technical assessment efforts will also move to MDE and include:
    - Extensive stream corridor assessment surveys (up to one hundred miles per watershed). The stream corridor assessment surveys provide a list of environmental problems present with a watershed's stream system and riparian corridor. The survey provides sufficient information on each problem so that a preliminary determination of both its severity and restoration potential can be made.
    - Field surveys including water quality analysis; fish and benthic sampling and assessment services; and a
    - Watershed characterization that is a compilation of current, historical, and forecasted land use, environmental and other natural resource information to support development of local watershed restoration plans and identify and prioritize restoration projects (for WRAS products see http://www.dnr.state.md.us/watersheds/surf/proj/wras.html).

- **DNR Project Coordination and Funding:** In addition to funds for planning, each 2004 WRAS has a DNR coordinator to facilitate delivery of state and/or federal technical assistance. For the 2005 WRASs, MDE provides a coordinator to facilitate delivery of state and/or federal technical assistance.

- **Restoration Project Implementation:** DNR and MDE help to coordinate technical and financial assistance for implementation of various projects such as wetland or riparian restoration, while leveraging resources from private and public partners.

The year 2004 saw the completion of the third year's WRASs (WRAS Class 2003) and the evaluative WRAS Roundtable (see WRAS Program Refinement below), plus the funding for implementation of WRAS 2003 projects, for WRAS 2004 planning, and WRAS 2005 selection. In addition to these efforts, two WRAS watersheds (the Corsica River and the Lower Monocacy) were nominated to EPA for the watershed initiative process in 2004. Participants in the proposals' development found the process valuable in enhancing ongoing cooperation and communication, and noted that in each case increased activity and coordination in these watersheds has resulted.

WRAS Program Refinement: One of the objectives of the WRAS Program is to institute refinements based on program experience. To gain local government participant input, and perspective, a WRAS Roundtable was held in the summer or fall of 2002, 2003, and 2004. The morning sessions were devoted to presentations by each of the WRAS local government representatives, who summarized the processes and results of their completed WRASs. The afternoon sessions were devoted to a group process technique identifying core issues, threats, opportunities, and strengths of the WRAS effort. The analysis and process proved very useful, informative, and insightful. This exercise aided in WRAS Programmatic changes and helped ensure that the Program remained responsive to the needs of local governments. Results of the September 14, 2004 Round Table are summarized below.

Summary of September 14, 2004 Roundtable Analysis:

Attendance

Local governments included: Jason Dubow and Keota Silaphone, Worcester County; Dave Brownlee, Calvert County; Shannon Moore and Kay Schultz, Frederick County; Michael Whitehill, Town of Centreville; Frank DiGialleonardo, Chester River Association (with the Town of Centreville WRAS effort), and Alison Putnam, NACD, (with the Town of Centreville WRAS effort). Representatives from the Western Branch WRAS did not attend.

Stage agency representatives from DNR included: Frank Dawson, Danielle Lucid, Kevin R. Coyne, Lisa Gutierrez, Mitch Keiler, Katheleen Freeman, Gwynne Schultz, Robin Pellicano, Jessica Hunicke, Kevin J. Coyne, Ken Sloate, Ken Shanks, Fred Irani, Jim George (MDE), and Ken Yetman.

Amy Handen from the National Park Service and Dan Nees from the Environmental Finance Center also attended.

Meeting Summary

Frank Dawson welcomed the 2003 WRAS graduating class to the 2004 WRAS Round Table and led the introductions. In the morning, local government representatives had the opportunity to present their progress and final results to the group. In the afternoon the group participated in a nominal group process to identify major strengths and weaknesses in the WRAS Program components. The exercise required local government representatives to work together as a group and state agency representatives to work together as a group to identify a list of program strengths and weaknesses. All participants then reconvened to discuss the top three concerns in each category. Amy Handen from the National Park Service facilitated the local government representatives group. Danielle Lucid facilitated the state representatives group. The State WRAS work group, in conjunction with National Park Service partners, met on October 20th, 2004 to develop a strategy that addressed the concerns of local governments as brought up in the Round Table.

WRAS Roundtable Summary

Maryland's *State Government* Representatives WRAS Strengths

Ten strengths were identified by *State Government* representatives. These strengths covered positive attributes such as organization, coordination, positive experiences, capacity development, empowerment, involvement, locally driven, local knowledge, open process, self-evaluating, appropriate scale, quantifiable plans, technical assessment ability, and that WRASs provided a framework to address regulatory and non-regulatory programs.

Three, overarching, strengths were identified by *State Government* representatives as being key to the program's success and included:

1. That the data development, dissemination, and continued subsequent utilization by local governments were seen as very positive.
2. That working at the local scale with local knowledge was the only way to really accomplish watershed protection and restoration.
3. That the program engendered synergy, created partnerships, collaboration, and stewardship.

Maryland's *State Government* Representatives WRAS Weaknesses

Sixteen Program weaknesses were identified that needed to be addressed if the Program was to continue to grow and be a successful avenue for restoring and protecting watersheds. Program weaknesses included shortcomings in tracking, follow-up after WRAS completion, program sustainability, implementation support, watershed coordinators, integration with other county plans, lack of enforcement, equity, time frame, political will, farmer participation, and data presentation.

Three, overarching, weaknesses were identified by State Government representatives as being impediments to the program's success and included:

1. There is very little follow-up or support after the WRAS is completed.
2. We presently demonstrate few mechanisms to track new projects or support the implementation or projects that come out of WRASs.
3. The SCA, Characterization, and Synoptic Survey are not presented in a consolidated or integrated fashion.

Maryland's *Local Government* Representatives: WRAS Strengths

Strengths were identified by *Local Government* representatives. These strengths covered positive attributes such as networked citizens with agencies and other groups, stakeholder involvement, specificity, science based decisions, funding help, flexibility, program change requirement, coordination, educated residents, complimented comprehensive plans and land use plans, equalized stakeholders, collection of solutions, new staff, opportunities, increased capacity, awareness, actual data (!), targeting ability, and the coordination of federal, state, and local governments.

Three, overarching, strengths were identified by *Local Government* representatives as being key to the program's success and included:

1. Dialogue with stakeholders, information exchange with state, local partners. The WRAS provided a structure for the 'dialogue' between all of the partners.
2. The WRAS provided a sustainable implementation through the "program changes" requirement.
3. Increased technical, organizational, and staff capacity of jurisdiction. The WRAS was a very inclusive process that incorporated science, not just anecdotal information, to make decisions.

Maryland's *Local Government* Representatives: WRAS Weaknesses

The weak aspects of the WRAS Program were identified by *Local Governments*. These weaknesses would need to be addressed if the Program was to continue to grow and be a successful avenue for restoring and protecting watersheds. Program weaknesses included serious delays in obtaining data, their surprise by the tremendous effort required, work load issues, lack of implementation funding, step by step guidance was needed, no example outlines, coordinators lacked training, no interpretation of data, no guidance from MDE or EPA on what it means to "address" the TMDLs.

Three, key weaknesses were identified by *Local Government* representatives as being key to the program's success and included:

1. Need for guidance to interpret data, prioritize restoration, preservation efforts. DNR could provide some general questions that could focus the jurisdiction when analyzing their data.

2. Guidance on process. DNR could provide an "anatomy of the WRAS" so the grantees know what to expect. This may include an overview of the deliverables required, the schedule of data collection and disbursement, what type of computer capabilities the jurisdiction should have.

3. Better DNR technical assistance and guidance through the process. SCA should be given to jurisdiction in a timely fashion, DNR coordinators should be trained better, role of coordinator should be identified, DNR should provide assistance with post-WRAS follow up/implementation.

Maryland's Agriculture Programs

Good water quality is the most critical element in the overall restoration and protection of the Chesapeake Bay, the Coastal Bays and their tributaries for the support of living resources and to ensure safe drinking water supplies and other beneficial uses. Agricultural activity, human population growth, development activities, atmospheric deposition and septic systems are each contributing nonpoint source pollution in the form of sediment, nutrients and other potential pollutants which affect the State's surface and ground waters.

A strong agricultural industry and a healthy environment go hand in hand. As we move ahead into the future, agricultural and soil conservation partners will continue to preserve Maryland's rural legacy by developing and promoting farming practices that are both environmentally sensitive and economically sound. Maryland has a variety of agricultural programs (Nutrient Management Program, MD Agricultural Water Quality Cost Share Program, Soil Conservation and Water Quality Planning, Conservation Reserve Enhancement Program, Manure Transport Program, and Agricultural Water Management Program) described below that address the control and reduction of nonpoint source pollution.

Nutrient Management /Water Quality Improvement Act (WQIA)

In 1998, the Maryland General Assembly passed landmark legislation that placed Maryland at the forefront of national efforts to protect water quality. The Water Quality Improvement Act (WQIA) established both short and long-term strategies for reducing nutrient levels in our streams, rivers and Chesapeake and Coastal Bays. The most significant feature of the Act is a provision requiring nutrient management plans for virtually all Maryland farms. The WQIA changed the nutrient management program from its voluntary status to a regulatory program. It requires farmers who use chemical fertilizers to submit a nitrogen and phosphorus based nutrient management plan to the Maryland Department of Agriculture (MDA) by December 31, 2001 and implement it by December 31, 2002. Farmers who use animal manure or sludge must have and implement nitrogen based plans by the same dates as those who use chemical fertilizers. Those who have sludge or animal manure have until July 1, 2004 to submit phosphorus based nutrient management plans and must implement them by July 1, 2005. Although the law includes a number of deadlines and requirements, it also offers many new incentives aimed at helping farmers comply.

In 2004, legislation was approved removing a contentious “Right of Entry” clause, increasing program flexibility, and streamlining the program. Rather than submitting plan updates, farmers will be required to submit an Annual Plan Implementation report for the previous calendar year beginning March 1, 2005

By the end of calendar year 2004, over 79% of farmers managing 84% of Maryland’s agricultural land was in compliance with the WQIA. As of December 31, 2004, Maryland farmers officially submitted nutrient management plan information for over 1.3 million acres of agricultural land. The information submitted includes 5449 completed nutrient management plans covering 1,121,605 acres. Another 1,281 farmers submitted information on a Justification for Delay form indicating they were still working with a consultant to develop their plans on a total of 208,633 acres.

In 2004 Maryland continued to implement a farmer certification program. Operations specific training was provided so farmers could do their own plan. Applicator training courses are required by the WQIA for farmers who apply nutrients to 10 or more acres of cropland. 653 farmers attended 26 nutrient applicator voucher training sessions in 2004. By June 30, 2004 4,209 applicators had received or renewed their vouchers.

During 2004, Approximately 640 people attended 25 training workshops on a variety of topics including *Intermediate Soil Fertility, Advanced Soil Science, Phosphorus Management*, and *How to Write a Nutrient Management Plan*.

For more information on available publications and program information, please see the MDA Nutrient Management website at http://www.mda.state.md.us/nutrient/nutmgmt.htm

Maryland Agricultural Cost Share (MACS)

State and federal funds are used to provide grants to Maryland farmers for the installation of best management practices (BMPs) to address existing or potential water pollution conditions associated with farming activity. Farmers may receive up to 87.5% of the cost of approximately 30 eligible BMPs. For more detailed information on the program, see the MACS website at: http://www.mda.state.md.us/resource/mawqca10.htm.

In state fiscal year (SFY) 2004, farmers installed over 1500 BMPs using $4.8 million provided through MACS. Farmers participating in the program invested over $600,000 of their own money for these practices, which collectively will prevent 1000 tons of manure daily and 15,000 tons of soil annually from impacting Maryland waterways and improve management of an estimated 1,860 tons of animal manure daily.

Cover crops are used as a tool to prevent soil erosion and control nutrient movement following crop harvest. In 2004, Maryland implemented a tiered system of payment to encourage farmers to plant cover crops early to maximize nutrient uptake. USDA, NRCS provided an additional $10 per acre for cover crops planted by October 1. Maryland provided $30 per acre for crops planted prior to October 15 and $20 for cover crops planted by the regional deadline.

Farmers certified approximately 60,000 acres as being planted prior to October 1 and a total of 87% was planted prior to October 15. Funds will not be finalized until farmers meet spring kill down requirement and submit claims for payment.

MACS provided more than $1.5 million in cost share for BMPs installed on land enrolled into the Conservation Reserve Enhancement Program in 2004. Additionally MACS funded over 196 nutrient management plans developed with the services of private sector consultants. These plans were developed with $271,549 in cost share support and affected 90,841 acres of agricultural land.

Soil Conservation and Water Quality (SCWQ) Program

Soil Conservation and Water Quality (SCWQ) Plans are at the heart of Maryland's resource conservation and protection efforts. Developed and implemented through a local delivery network of soil conservation districts, these plans help farmers manage natural resources and identify and solve potential environmental problems while reaching optimal but sustainable production goals. SCWQ plans contain a menu of best management practices (BMPs) to help farmers prevent sediment, nutrients and fertilizers from impacting nearby waterways.

In 2004, 1,100 soil conservation and water quality (SCWQ) plans were developed for 87,000 acres with an associated 5700 BMPs installed. Plans are considered current for a maximum of ten years. In addition to planning acreage for new cooperators, local Soil Conservation Districts (SCDs) keep a rolling tally of acreage planned in the past and have an ongoing system of regular updates. In 2004, 850 existing SCWQ plans were updated to ensure their continued effectiveness in manage 100,000 acres and protecting natural resources.

Conservation Reserve Enhancement Program (CREP)

Maryland was the first state to take advantage of the innovative Conservation Reserve Enhancement Program (CREP), which allows states to focus on natural resource issues of the greatest local concern. Under the program, Maryland landowners can protect sensitive streamside areas and highly erodible lands and restore wetlands. CREP provides annual rental payments for 10 –15 years and cost share for installing BMPS to conserve these sensitive resource areas. Since program initiation in October of 1997, Maryland landowners have

protected over 71,200 acres of these sensitive lands through CREP enrollment and BMP installation.

In 2004 Maryland submitted a proposal to modify and extend the Conservation Reserve Enhancement Program another 5 years. Incentive payments were modified to maximize stream buffer miles. Although in agreement with USDA was executed in June 2004, the Maryland program has not received approval to enroll farms pending completion of a "Federal Environmental Assessment". For additional information see the CREP website: http://www.mda.state.md.us/resource/crep.htm.

Manure Transport Program

The Manure Transport Program provides support to animal producers who have excess manure and need to find alternative means of managing it in order to be in compliance with the WQIA. The two-fold objectives of the program include subsidizing the cost of transporting animal manure to make it affordable for animal producers to address excess manure and providing an incentive for the development of alternative technologies and business ventures to create a market for use of animal manures. In SFY 2004, participants received over $581,200 to transport over 40,755 tons of manure from areas with high phosphorus levels or from farms that couldn't utilize the manure onsite. See http://www.mda.state.md.us/nutrient/transport.pdf for more information.

Operations receiving manure for land application under the program must apply it in accordance with a nutrient management plan prepared by a certified consultant. Receiving operations with alternative uses for manure are also eligible to participate. Current alternatives to direct land application include the use of poultry litter as a substrate for growing mushrooms and the manufacture of fertilizer pellets by Perdue Agri-Cycle for use in landscaping and shipment to other regions of the country. To date, practically all of the manure transported has been poultry litter. Reimbursement for all participants is capped at $20 per ton. Commercial poultry companies paid fifty percent of the cost of transporting poultry litter in 2004. New guidelines adopted in 2004 make it easier for dairy farmers and other non-poultry animal producers to transport manure within their own operations, provided the manure is moved more than one mile from the production or storage site. Livestock producers receive up to 87.5% of transport costs from public funds.

Agricultural Water Management Program

The Maryland Department of Agriculture (MDA) regulates agricultural public drainage facilities administered as Public Drainage Associations (PDAs). PDAs are independent political subdivisions with local taxing authority and cover over 850 miles of drainage ditches in the coastal zone, mostly on the Eastern Shore. The PDAs are required to develop and implement approved operation and maintenance plans that address sediment control and water quality protection.

MDA assists PDAs to conduct biannual inspections and provides technical assistance through the SCDs. Typical best management practices include vegetative filter strips and channel stabilization.

Over the last four years the Maryland Department of Agriculture, Resource Conservation Program has effectively used incremental nonpoint source program funds to promote and coordinate a program to support progressive maintenance techniques and BMP's that allow continued drainage but also provide environmental benefits consistent with the Chesapeake Bay

Program goals. To date, funding has provided improvements in 29 PDAs by promoting the construction of wetland areas, installation of water control structures to slow water movement and grade control structures, and repair and stabilization of bank blowouts caused by storm events. Routine maintenance practices such as mowing or channel clean outs are supported with local funds from tax revenues.

Nonpoint source program incremental funds that went towards implementation of innovative BMPs were leveraged by State funds and local funds raised through taxing landowners beneficiaries. The Soil Conservation Districts, PDA Coordinators and National Resource Conservation Service (NRCS) engineers' time in planning, design, permit applications, construction checks and final approval were all services provided as in-kind and free to landowners and PDAs.

Nonpoint Source Total Maximum Daily Load Implementation

The Maryland Department of the Environment (MDE) is responsible for developing the state's list of impaired waters (i.e., the 303(d) list). MDE is also responsible for developing Total Maximum Daily Loads (TMDLs) for impaired waters. A TMDL establishes the maximum amount of a pollutant that a waterbody can assimilate and still meet Water Quality Standards. TMDLs allocate pollution loads for both point and nonpoint sources. TMDLs typically address a single pollutant (e.g., nutrients, sediment, fecal coliform) for each waterbody.

During 2004, MDE submitted 39 TMDLs to EPA for review and approval. In past years most TMDLs have addressed nutrient impairments in tidal waters of the State, which have significant nonpoint source implications. The vast majority of this year's TMDLs address fecal coliform bacteria in shellfish harvesting areas, which is also predominantly a nonpoint source problem. In support of these TMDL analyses, MDE is in the process of conducting bacteria source tracking (BST) studies to estimate the relative contributions by source category. Appendix B contains maps indicating the current status of TMDL development for nutrients, sediments and fecal coliform.

In addition to TMDL development activities, Maryland continues to advance TMDL implementation activities. Maryland recognizes that the §319 Program should address the restoration and protection of water quality standards under the Clean Water Act. To more effectively strive for this goal, the §319 Program was transferred from the Maryland Department of Natural Resources, to MDE, which has the responsibility for implementing the Clean Water Act in general, and TMDL implementation in particular. Recognizing the vital role to be played by local governments in TMDL implementation, MDE hosted a workshop on TMDL implementation for local government in September 2004. The primary outcome of that workshop was a commitment by Maryland to work jointly with local government staff to begin developing TMDL implementation guidance for local governments. MDE staff also began working with staff from three local governments, under a Departmental Initiative, to begin providing technical assistance on incorporating nutrient TMDL implementation into local planning efforts. This technical assistance has focused on quantitiative nonpoint source reduction planning within the Watershed Restoration Action Strategy (WRAS) framework.

Coastal Nonpoint Source Program

Although the §319 nonpoint source program was transferred from Department of Natural Resources to the Department of the Environment, the Maryland Coastal Nonpoint Source (NPS) Program is still housed at DNR. The National Oceanic and Atmospheric Administration (NOAA) and EPA are jointly responsible for overall administration of the Coastal NPS Program. During 2004, NOAA conducted an evaluation of the Maryland Coastal Zone Management Program. This evaluation included a review of the Maryland Coastal NPS Program. The NOAA evaluation concluded that the Maryland Coastal Zone Program is adhering to the terms of the Coastal Zone Management Act. NOAA's review also concluded that Maryland's Coastal Nonpoint Source Program was making significant progress in implementing best management practices to control and prevent nonpoint source pollution in the coastal zone.

In recent years, the Maryland Coastal Nonpoint Source Program has focused its efforts at promoting innovative landscape design techniques to reduce urban nonpoint source pollution and building local capacity of coastal counties to manage on-site disposal septic systems. During the 2004 summer, the Coastal Program released a RFP requesting projects that would highlight different innovative design techniques. The program received 21 proposals and selected 11 environmental sensitive design projects. Projects will be funded in the Cities of Baltimore and Ocean City and Worcester, Harford, Anne Arundel, St. Mary's and Prince George's Counties. Projects will include the implementation of bioretention facilities, the incorporation of permeable pavers in parking lots, the greening of vacant city lots, addressing runoff at boat launches and installing a living roof at a community college. The public will have access to all projects, so that it may see first hand how innovative urban best management practices work. Program project will be completed in 2006 and 2007.

Coastal Nonpoint Source Program Funds have also recently been used by eight coastal counties to develop accurate inventories, databases and maps of properties managed by septic systems. These inventories have identified areas of increased monitoring due to potential water quality impacts, areas that should be hooked up to sewer systems and areas where homeowners may be targeted for outreach on system maintenance. This work is key to local government's ability to reduce the impacts of septic systems and protect environmentally sensitive areas. These inventories also are important for local counties as Bay Restoration Funds become available.

The Bay Restoration Fund includes a $30 annual fee that will be collected from each home served by an onsite disposal system. The total estimated program income is estimated at $12.6 million per year. Sixty percent of these funds will be used for septic system upgrades and the remaining 40 percent will be used for cover crops. There are over 400,000 onsite disposal systems in Maryland. Bay Restoration Funds will be provided for upgrades of existing systems to best available technology for nitrogen removal or for the marginal cost of using best available technology instead of conventional technology. Priority will be given to failing septic systems with the Critical Area. Bay Restoration Funds are expected to become available for on-site disposal systems upgrades during the fall of 2006.

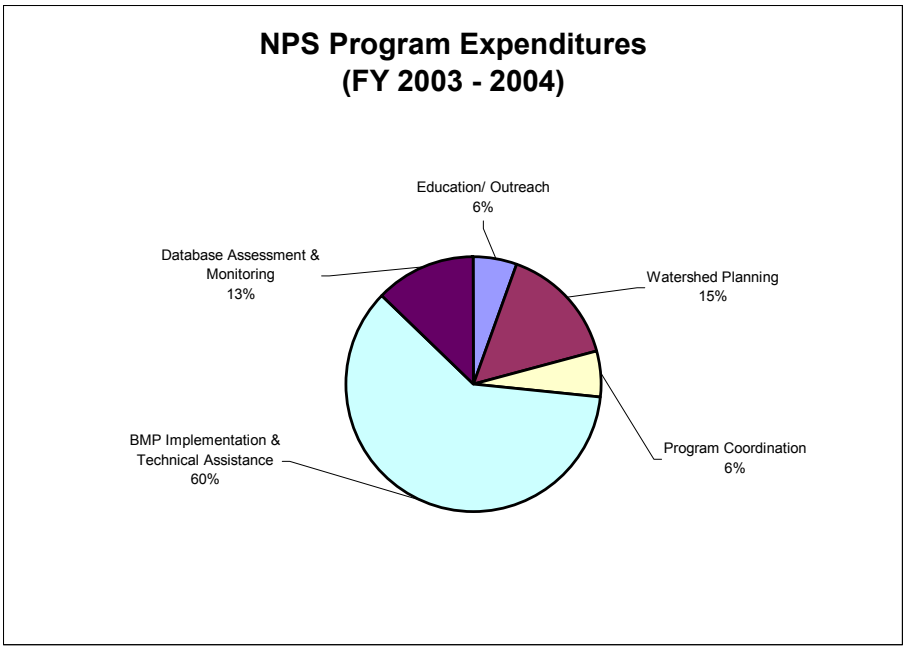
Other Related Programs:

Clean Marinas: Maryland is viewed as a national leader in its early efforts to establish a Clean Marinas Program. Clean marinas provide certification of public and private boating facilities as Maryland Clean Marinas (as part of Maryland's Costal Zone Management plan, in response to Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990). Through agreement with EPA and NOAA, Maryland must certify 25% of its boating facilities as Clean Marinas in order to avoid potential additional regulation of the marina industry. As of the end of 2004, there were a total of 100 Certified Clean Marinas and Clean Marina Partners. "Partners" are small boating facilities such as public boat ramps vs. full service marinas. (100 total towards the goal of 150 facilities certified--out of a universe of about 600 potential facilities.) Eighty-six additional marinas have signed pledges. Roughly 17% percent of Maryland's marinas are now certified and approximately 30% of commercial slips in Maryland are now at a Clean Marina.

Tributary Strategies Program: The Tributary Strategies Program was created to reduce Maryland's nitrogen and phosphorus pollution to the Chesapeake Bay, through cooperative efforts by state agencies, local governments, Tributary Teams and others. Since 1985, Maryland has made significant progress in reducing nutrient load inputs to the Bay. In April 2004, the Tributary Strategies Program released its revised strategies for nutrient load reductions. These revised annual loading goals, 37.25 million pounds of nitrogen and 2.92 million pounds of phosphorus, represent a 50% cut in nutrients loading from 1985. The revised strategies continue to push for the implementation of a wide range of best management practices in agricultural and urban/suburban environments. The strategies also push for reductions from point sources and from mobile sources (e.g. air) through implementation of the Clean Air Act. At the same time, there is the clear recognition that innovative practices need to be implemented and dedicated sources of funding found (e.g. to address urban/suburban stormwater runoff) to meet full strategy goals. To view current best management practices implementation totals, please see Appendix C.

Nonpoint Source Program Projects

The allocation of §319 Clean Water Act funds is coordinated by MDE's Technical and Regulatory Services Administration. The funds are used primarily for direct implementation and secondarily, program management, planning and technical assistance. Nonpoint source program expenditures generally fall into five broad categories: watershed planning, best management practices (bmp) implementation and technical assistance, database assessment and monitoring, program coordination and education/outreach. Over the last two grant years, the State of Maryland has received a total of over $6 million dollars from the Environmental Protection Agency under CWA §319 to control and prevent nonpoint source pollution. The state has matched these federal funds by spending over $4 million dollars. Program expenditures categories are summarized in the pie chart and table below. (Additional information about NPS program expenditures may be found in Appendix D).



An analysis of program expenditures clearly indicates the importance that is placed upon watershed planning and best management practices implementation. The NPS program's support of watershed planning helps local government prioritize projects needed to improve water quality and habitat. The nonpoint source program assists watershed plan implementation efforts by funding a variety of projects. Over the last three years, program efforts have resulted in the restoration and stabilization of streams, the planting of buffers along riparian waterways and providing technical and financial assistance to agricultural landowners to install a wide variety of best management practices designed to reduce nutrient and sediment pollution. Over the next three years, the NPS Program will intensify its implementation efforts, targeting more resources, some of which are currently directed toward planning activities, to a small number of watersheds to help remove waters from the impaired waters list.

During any given calendar year, the NPS Program funds a number of planning and implementation projects. In the program, projects from overlapping grant years occur in any given calendar year, i.e., some projects are ongoing from previous years, some are ending, some are proposed or just beginning. This section contains a summary of projects that were awarded, active and completed during 2004.